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REMARKS

Reconsideration of this Application is respectfully requested. Upon entry of the foregoing Amendment to the Claims, claims 18-29 are currently pending in the instant application, of which claims 18 and 29 are independent. By the foregoing Amendment, claims 18, 20, 27 and 29 are sought to be amended. No new matter is embraced by this amendment and its entry is respectfully requested. Based on the above Amendment and the remarks set forth below, it is respectfully requested that the Examiner reconsider and withdraw all outstanding rejections.

I. Rejection under 35 USC 112, first paragraph

Claims 18-29 have been rejected under the first paragraph of Section 112 for not being enabled. In particular, it is the Examiner's position that "[i]t is unclear where applicant teaches how to control [the] deposition process and subsequent polishing process [of layer 5] so as to form a resulting layer thickness that is 'just enough to cover' a roughness of the free surface of the diamond layer and to form a resulting layer having a 'substantially flat' outer surface." Reconsideration is requested in view of the following comments.

As stated in the MPEP at Section 2164.01:

The standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). Accordingly, even though the statute does not use the term "undue

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experimentation." it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). See also *United States v. Teletronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) ("The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation."). A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). Determining enablement is a question of law based on underlying factual findings. *In re Vaack*, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991); *Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984). It is clear that a person skilled in the art would recognize

As noted above, a patent need not teach, and preferably omits, what is well known in the art. It is clear that a person skilled in the art would easily be able to control the metallization of a CVD diamond layer and subsequent polishing of the thus deposited metal layer to the extent that is "just enough" to cover a roughness of the diamond layer. As one example, it is well known in the art: (1) that a diamond layer can be deposited via CVD that would exhibit a known roughness and surface topography; (2) that deposition via either sputtering or metal plating can be easily controlled to deposited a known volume of material; and (3) that, given the known topography of the CVD diamond layer and the known deposited volume of the covering layer, it would be abundantly clear to one skilled in the art to what extent the covering layer would need to be polished to order for its thickness to be "just enough" to cover a roughness of the CVD

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diamond layer. The above could, by way example, be achieved by simple computer simulation. In this regard, it is noted that Applicants are not required by the first paragraph of Section 112 to spell out details of embodiments of their invention that would be readily recognized by persons skilled in the art.

The Examiner's explanation of the rejection further points to the "uncertainties of deposition and polishing," and states that the specification "appears to provide no clear guidance as to how to specifically make articles of the claimed terms." It is respectfully submitted, however, that, as noted above in the quoted portion of the MPEP, and as heavily supported by case law, not ALL of the details pertaining to an invention would need to be expressly set forth in the specification proper in order for the claims of an application to be enabled, the instant application being a good example of the same. In the instant case, not only would a person skilled in the art recognize the possibilities available for achieving the desired result of a covering layer having a thickness "just enough" to cover a roughness of a CVD diamond layer, but, importantly, common sense would help one arrive at at least some of the same possibilities.

II. Rejection under 35 USC 112, second paragraph

Claims 18-29 have been rejected under the second paragraph of Section 112 for being indefinite. Reconsideration is respectfully requested in view of the following comments.

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- I. In view of the Examiner's concerns, claims 18 and 29 have been amended to correctly refer to the "thermal coupling surface" rather than to a "thermal covering surface."
- II. See comments under I. above.
- III. It is the Examiner's position that the expression "substantially flat" is unclear. First, it is not seen how or why Examiner takes exception with use of the above expression, as above expression was discussed at length with Examiner and approved by Examiner during telephone conference with undersigned on April 16, 2004. The above notwithstanding, the meaning of "substantially flat" would be clear to one skilled in the art. First, claims 18 and 29 refer to a flatness of the covering layer that is "in a range to allow attachment to a thermal interface material," where the covering layer has a thermal coupling surface that is "substantially flat." Any person skilled in the art would recognize the required degree of flatness required to achieve the desired result, and, in this regard, would need to look no further than, by way of example, the existing methods for polishing diamond surfaces proper. See for example paragraph 4 of application, referring to U.S. Patent Number 6,197,375. It is clear that the covering layer could for example be polished to achieve at least the "substantially flat" topography of polished diamond layers of the prior art. Examiner further appears to not be able to reconcile "having roughness" with being "substantially flat." It is noted in this regard that, as is well

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know, even a substantially flat surface has a quantifiable "roughness," roughness having been defined in paragraph 22, and an example of "substantially flat" having further been given in paragraph 27 as being less than or equal to 10 microns.

- IV. It is the Examiner's position that the expression "just enough to cover" is unclear. First, it is not seen how or why Examiner takes exception with use of the above expression, as above expression was discussed at length with Examiner and approved by Examiner during telephone conference with undersigned on April 16, 2004. The above notwithstanding, the meaning of "just enough to cover" would be clear to one skilled in the art. As noted in the Supplemental Amendment filed on April 16, 2004, the meaning of "just enough to cover" is readily ascertainable at least from Figs. 3, 4, 5, 6a, 6b and 6c.
- V. With respect to CVD diamond layers versus single crystal diamond layers, although the specification mentions that single crystal diamond layers would be encompassed by embodiments of invention, at no point that application intimate that CVD diamond layers would be single crystal layers. The specification clearly describes CVD diamond layers as exhibiting undesirable roughness, and the claims are directed to CVD diamond layers.

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III. Rejection under Section 102

A. Hall et al.

Claims 18, 19, 25 and 29 have been rejected under Section 102(e) as being anticipated by Hall et al. Reconsideration is respectfully requested in view of the following comments.

The content of Hall et al. has been discussed in the Amendments submitted on September 26, 2003.

Hall et al. do not disclose a CVD deposited diamond layer, as set forth in independent claims 18 and 29. It is well known that CVD deposited diamond layers present a typical structure that easily points to the process used to deposit the layer. Hall et al's diamond layer is clearly not CVD deposited, and thus clearly cannot possess the required structure.

In view of the above, the rejection of claims 18, 19, 25 and 29 in view of Hall et al. should be withdrawn.

B. Petkie

Claims 18-21, 23, 24, 25 and 29 have been rejected under Section 102(e) as being anticipated by Petkie. Reconsideration is respectfully submitted in view of the following comments.

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The content of Hall et al. has been discussed in the Amendments submitted on September 26, 2003.

Petkic does not disclose a CVD diamond layer having an unpolished free surface on which a covering layer or a means for providing is adhered, as set forth respectively in independent claims 18 and 29 of the present invention. In Petkie, the CVD diamond surface is polished.

Examiner argues that, "depending on the circumstances of manufacture, and 'unpolished' diamond may be indistinguishable from one that has been polished." It is noted, however, that a CVD diamond layer that has been polished is structurally distinguishable from one that has not been polished, as would be well within the knowledge of one skilled in the art.

In view of the above, the rejection of claims 18-21, 23, 24, 25 and 29 in view of Petkie should be withdrawn.

C. Thorpe et al.

Claims 18-23, 25 and 29 have been rejected under Section 102(b) as being anticipated by Thorpe et al. Reconsideration is respectfully requested in view of the following comments.

The content of Thorpe et al. has been discussed in the Amendments submitted on September 26, 2003.

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Examiner's support for the rejection is based on the assumption that, although Thorpe et al. do not disclose a heat spreader, "Thorpe could function as a heat spreader." However, Examiner's rejection in view of Thorpe et al. is still missing the fact that:

1. Thorpe et al. fail to disclose a CVD diamond layer;
2. Thorpe et al. fail to disclose a diamond layer with an unpolished free surface;
3. Thorpe et al. fail to disclose layers above the diamond layer that present a thermal coupling surface.

The above is in addition to the fact that Thorpe et al. fail to disclose a heat spreader in the first instance.

In view of the above, the rejection of claims 18-23, 25 and 29 in view of Thorpe et al. should be withdrawn.

D. Shiomi et al.

Claims 18-21, 23, 25 and 29 have been rejected under Section 102(b) as being anticipated by Shiomi et al.

The content of Shiomi et al. has been discussed in the Amendments submitted on September 26, 2003.

Examiner's support for the rejection is based on the assumptions that:

- a. "a metal polished layer would inherently be indistinguishable from the metal layers of Shiomi et al. in view of the absence of any particular degree of metal polishing;"

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- b. "it would appear that Shiomi et al. could function as a heat spreader;"
- c. "differences in the claimed and disclosed surface roughness and layer thickness are unclear in view of the section 112 issues."

However, Examiner's rejection in view of Shiomi et al. is missing the fact that The "particular degrees of metal polishing" and the desired surface roughness and flatness have already been set forth in claims 18 and 29, as explained in the specification and in the sections above countering the rejections under Section 112, first and second paragraphs

Shiomi et al. fail to disclose a covering layer or means for providing where the thickness is just enough to cover the roughness of the free surface of the diamond layer.

In view of the above, the rejection of claims 18-21, 23, 25 and 29 in view of Shiomi et al. should be withdrawn.

E. Chrysler et al.

Claims 18-21 and 23- 29 have been rejected under Section 102(e) as being anticipated by Chrysler et al.

The content of Chrysler et al. has been discussed in the Amendments submitted on September 26, 2003.

Examiner's support for the rejection is based on the assumptions that "differences in the claimed and disclosed surface roughness and layer thickness are unclear in view of the section 112 issues."

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However, Examiner's rejection in view of Chrysler et al. is missing the fact that the desired surface roughness and flatness have already been set forth in claims 18 and 29, as explained in the specification and in the sections above countering the rejections under Section 112, first and second paragraphs

Chrysler et al. fail to disclose a covering layer or means for providing where the thickness is just enough to cover the roughness of the free surface of the diamond layer.

In view of the above, the rejection of claims 18-21 and 23-29 in view of Chrysler et al. should be withdrawn.

F. Mahajan et al.

Claims 18-21 and 23- 29 have been rejected under Section 102(e) as being anticipated by Mahajan et al.

The content of Mahajan et al. has been discussed in the Amendments submitted on September 26, 2003.

Examiner's support for the rejection is based on the assumptions that "differences in the claimed and disclosed surface roughness and layer thickness are unclear in view of the section 112 issues."

However, Examiner's rejection in view of Mahajan et al. is missing the fact that the desired surface roughness and flatness have already been set forth in claims 18 and 29, as explained in the specification and in the sections above countering the rejections under Section 112, first and second paragraphs

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Mahajan et al. fail to disclose a covering layer or means for providing where the thickness is just enough to cover the roughness of the free surface of the diamond layer.

In view of the above, the rejection of claims 18-21 and 23-29 in view of Mahajan et al. should be withdrawn.

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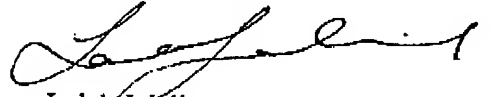
CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all currently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Response is respectfully requested.

Respectfully submitted,

Intel Corporation



Laleh Jalali
Senior Attorney
Intel Americas, Inc.
Registration No. 40,031
(703) 633-0944

Dated: 09-28-04

c/o Intel Americas, Inc.
4030 Lafayette Center Drive
Building LF3
Chantilly, VA 20151

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By: 
Laleh Jalali

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